Statistical Study on Calculation for the Calorific Value of Coal

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constant giving the total number of sites of adsorbed molecules in a monolayer per unit area of the solution surface when no interaction between the adsorbed molecules exists, and a is another surface chemical constant relating to the adsorption energy of the solute molecule on the solution surface. The values of n and a determined from the experimental data are given in Table 1.

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11. Statistical Study on Calculation for the Calorific Value of Coal

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The accurate calorific value of coal is measured by Bomb-Calorimeter, which requires the expensive apparatus and troublesome process.

However, the calorific value of coal is much more simply calculated from the results of the proximate analysis. The present paper describes the statistical study of the degree of appropriety of the following eight formulae of calculation, those of Gmelin, Arai, Kôsaka, Nakamura, Lenoble, Goutal, Kent, and Schmit. When the coal of 3000-8000 Cal/kg. was tested, the best result in accuracy and precision was obtained by Gmelin's equation, and the Arai's followed. If the correlation is modified by using the regression line, the precision of the Arai's is improved.

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12. Studies on the Sorption of Emulsifiers in the Emulsion-polymerisation

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In the emulsion-polymerisation of vinyl compounds, emulsifier plays roles of (1) the solubilizer of monomers into the micelle of emulsifier, (2) the locus of polymerisation and (3) the protector of the surface of polymer particles. These three roles have been already studied. For instances, the first has been pointed out by W. Harkins (*J. Am. Chem. Soc.*, **69**, 1428 (1947)) and recently discussed in some details about different monomers by present authors (delivered at the Meeting of the Division of colloid chemistry in the Chemical Society in Japan, held at Fukuoka in Oct. 1952). The second has been researched by W. V. Smith (*J. Chem. Phys.* **16**, 592, (1948); *J. Am. Chem. Soc.*, **70**, 3695 (1948); **71**, 4077 (1949)). And finally on the third point, we have assumed simply without any accurate determinations that emulsifier would be adsorbed in the surface of particles.